

**SECTION 16140**

**WIRING DEVICES**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This Section includes various types of receptacles, connectors, switches, occupancy sensors, and finish plates.

**1.2 REFERENCE STANDARDS**

Applicable only to the extent specified.

A. Federal Aviation Administration (FAA)

- 1. C-1217f Electrical Work, Interior
- 2. STD-019e Lightning and Surge Protection, Grounding, Bonding and Shielding Requirements for Facilities and Electronic Equipment.

B. Federal Specifications (FS)

- 1. W-C-596 General and Associated Detailed Specifications: Connector, Plug Receptacle, and Cable Outlet, Electrical Power
- 2. W-S-896E Switch, Toggle, Flush Mounted

C. National Electrical Manufacturers Association (NEMA)

- 1. WD1 General Requirements for Wiring Devices

D. National Fire Protection Association (NFPA)

- 1. 70 National Electrical Code (NEC)

E. Underwriters Laboratories (UL)

- 1. 20 Standard for Safety General Use Snap Switches.
- 2. 498 Standard for Safety Attachment Plugs and Receptacles.
- 3. 943 Ground Fault Circuit Interrupters

F. Occupational Safety and Health Administration (OSHA)

- 1. 29 CFR 1910.7 Definitions and Requirements for Nationally Recognized Testing Laboratories.

**1.3 SUBMITTALS**

- A. Product data for each product specified.
- B. Operation and maintenance data for materials and products specified in this Section to include in the Operating and Maintenance Manual.

**1.4 QUALITY ASSURANCE**

- A. Comply with NFPA 70, NEC, for devices and installation.
- B. Listing and Labeling: Provide products that are listed and labeled for their applications and installation conditions and for the environments in which installed.
  - 1. The Terms "Listed" and "Labeled": As defined in the "National Electrical Code," Article 100.
  - 2. Listing and Labeling Agency Qualifications: An "NRTL" as defined in OSHA Regulation 1910.7.

**1.5 COORDINATION**

- A. Device plates shall be stainless steel, brushed finish. Convenience receptacles shall be brown; computer receptacles shall be ivory; and receptacles for critical circuit shall be orange.
- B. Cord and Plug Sets: Match cord and plug sets to equipment requirements.

**1.6 LIMITED WARRANTY**

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty, Motion Sensor Equipment: Provide a written warranty signed by manufacturer and Installer agreeing to replace sensors against defects in material or workmanship for a period of three years from the date of Substantial Completion. Defective sensors shall be replaced within the warranty period at no cost to the Owner.

**PART 2 - PRODUCTS**

**2.1 GENERAL**

- A. Materials procured and installed in this Section shall be in accordance with FAA C-1217f and FAA STD-019e.

## 2.2 WIRING DEVICES

- A. Comply with NEMA Standard WD 1, "General Purpose Wiring Devices."
- B. Enclosures: NEMA 1 equivalent, except as otherwise indicated.
- C. Color: White or Ivory, except as otherwise indicated or required by Code.
- D. Receptacles, General: All receptacles shall be specification grade in accordance with NEMA WD 1. Wiring terminals shall be of the screw-type. Receptacles with push-in connections or a combination of screw-type and push-in connectors are not acceptable.
  - 1. Straight-Blade: Except as otherwise indicated, comply with Federal Specification W-C-596 and heavy-duty grade of UL Standard 498. Provide NRTL labeling of devices to verify these compliances.
    - a. Rated 20 amperes at 125 and 250 volts AC. 125 volt AC receptacles shall have NEMA WD1 type 5-20R configuration.
    - b. Heavy duty, general use of fire resistant non-absorptive thermoplastic material.
    - c. Two-pole, three wire grounding type with polarized parallel slots.
    - d. Side wired with two screws for each terminal and one screw for grounding.
    - e. Grounding pole connected to mounting yoke.
  - 2. Ground-Fault Circuit Interrupter Receptacles: UL Standard 943, "Ground Fault Circuit Interrupters," feed-through type, with integral NEMA 5-20R (UL Group I, Class A), duplex receptacle arranged to protect connected downstream receptacles on the same circuit.
- E. Wall Switches: NRTL listed and labeled as complying with UL Standard and with Federal Specification W-S-896.
  - 1. Rated 20 amperes at 120 and 277 volts AC, as indicated.
  - 2. Heavy-duty, general use, toggle type, quiet operation, with brown handle and body of fire resistant, non-absorptive, thermoplastic material.
  - 3. Single pole, double pole, three or four way, as indicated.
  - 4. Silver alloy contacts.
  - 5. Screw-type wiring and grounding terminals. Push-in is not acceptable. Connect grounding screw to the mounting yoke.
- G. Device Plates: Single and combination types that mate and match with corresponding wiring devices. Features include the following:
  - 1. Color: Matches wiring device except as otherwise indicated.
  - 2. Plate-Securing Screws: Metal with heads colored to match plate finish.
  - 3. Material for Finished Spaces: Thermoplastic material.
  - 4. Material for Unfinished Spaces: Raised type galvanized steel.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install devices and assemblies plumb and secure, with alignment tolerance of 1/16 inch.
- B. Install wall plates when painting is complete.
- C. Arrangement of Devices: Except as otherwise indicated, mount flush, with long dimension vertical, and grounding terminal of receptacles at bottom. Group adjacent switches under single, multi-gang wall plates.
  - 1. Install switches up or to left for ON position.
  - 2. Mount receptacles in uniform position and same polarity.
- D. Protect devices and assemblies during painting.
- E. Use green pigtail to connect the receptacle ground terminal to the box terminal.
- F. Install occupancy sensors in accordance with guidelines provided by manufacturer.

#### 3.2 IDENTIFICATION

- A. Comply with Section 16195 "Electrical Identification."
  - 1. Switches: Where 3 or more switches are ganged, and elsewhere where indicated, identify each switch with approved legend engraved on wall plate.
  - 2. Receptacles: Identify the panelboard and circuit number from which served. Use machine-printed, pressure-sensitive, abrasion-resistant label tape on both faces of plate and durable wire markers or tags within outlet boxes.

#### 3.3 FIELD QUALITY CONTROL

- A. Testing: Test wiring devices for proper polarity and ground continuity. Operate each operable device at least 6 times.
- B. Replace damaged or defective components.
- C. Check tightness of connections to switches and receptacles.

#### 3.4 CLEANING

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- A. General: Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

**\*\*\*END OF SECTION 16140\*\*\***